

Current Status of the Claims

Claim 1. (currently amended) A method for generating a three-dimensional object comprising the steps of:

scanning an object model with a light beam of a light source, wherein the scanning optical system operates confocally;
detecting the light returning from the object model;
generating object model data from different intensity values and/or different wavelengths and/or different polarizations of the detected object model light; and,
transmitting the object model data to an apparatus for object generation.

Claims 2-7 (cancelled)

Claim 8 (currently amended) The method as defined in Claim 1, wherein in order to depict dynamic processes of an object plane, a plurality of depictions of said object planes in said object model detected at different times are assembled into a three-dimensional object.

Claim 9 (currently amended) A method for generating a three-dimensional object comprising the steps of:

scanning an object model with a light beam of a light source, wherein the scanning optical system operates confocally;
detecting the light returning from the object model;
generating object model data from different intensity values and/or different wavelength and/or different polarization of the detected object model light; and,
transmitting the object model data to an apparatus for object generation, wherein object generation is accomplished substantially using laser beam lithography methods, and wherein said generated three-dimensional object is generated from a mixture of polymeric liquid such that each

~~one of said polymeric liquids is cured by one or more of a different intensity value and/or a different wavelength and/or a different polarization of the detected object model light.~~

Claims 10-12 (cancelled)

Claim 13 (currently amended) The method as defined in Claim 9, wherein in order to depict dynamic processes of an object plane, a plurality of depictions of said object planes plane in said object model detected at different times are assembled into a three-dimensional object.

Claims 14-19 (cancelled)

Claim 20 (previously presented) The method as defined in Claim 1 wherein said generated three dimensional object is transparent.

Claim 21 (previously presented) The method as defined in Claim 1 wherein said generated three dimensional object is generated in more than one color.

Claim 22 (previously presented) The method as defined in Claim 9 wherein said generated three dimensional object is transparent.

Claim 23 (previously presented) The method as defined in Claim 9 wherein said generated three dimensional object is generated in more than one color.

Claim 24 (currently amended) A method for generating a three-dimensional object comprising the steps of:

scanning an object model with a light beam of a light source, wherein the scanning optical system operates confocally;

detecting the light returning from the object model;

generating object model data from different intensity values and/or different wavelength and/or different polarization of the detected object model light; and,

transmitting the object model data to an apparatus for object generation, wherein said generated three-dimensional object is generated from a polymeric liquid and wherein said generated object is partly transparent.

Claim 25 (previously presented) The method as defined in Claim 24 wherein said polymeric liquid possesses different degrees of transparency as a function of time of exposure to said light source.

Claim 26 (currently amended) A method for generating a three-dimensional object comprising the steps of:

scanning an object model with a light beam of a light source, wherein the scanning optical system operates confocally;

detecting the light returning from the object model;

generating object model data from different intensity values and/or different wavelength and/or different polarization of the detected object model light; and,

transmitting the object model data to an apparatus for object generation, wherein said object generation is accomplished substantially using laser beam lithography methods and wherein said generated three-dimensional object is generated from a polymeric liquid and wherein said generated object is partly transparent.

Claim 27 (previously presented) The method as defined in Claim 26 wherein said polymeric liquid possesses different degrees of transparency as a function of time of exposure to said light source.

Claim 28 (new) The method for generating a three-dimensional object as recited in Claim 1 wherein said object is generated from various materials.

Claim 29 (new) The method for generating a three-dimensional object as recited in Claim 28 wherein said object is generated from a mixture of polymeric liquids.

Claim 30 (new) The method as recited in Claim 1 wherein the scanning optical system has at least one illumination pinhole and one detection pinhole.

Claim 31 (new) The method as defined in Claim 1, wherein the scanning operation is controlled by a control device, and the light beam is deflected by a beam deflection device.

Claim 32 (new) The method as defined in Claim 1, wherein the light returning from the object model is reflected light and/or scattered light and/or fluorescent light.

Claim 33 (new) The method as defined in Claim 1, wherein scanning of the object model is accomplished with a confocal scanning microscope.

Claim 34 (new) The method as defined in Claim 1, wherein object generation is accomplished substantially by material-removing shaping.

Claim 35 (new) The method as defined in Claim 9, wherein the laser beam of the laser beam lithography machine exposes a polymer liquid that can be cured by laser light.

Claim 36 (new) The method as defined in Claim 9, wherein rapid prototyping methods are used for object generation.

Claim 37 (new) The method as defined in Claim 9, wherein the generated object is generated from various materials.

Claim 38 (new) A system for generating a three-dimensional object comprising:

- a scanning optical system for scanning an object model;
- a detector detecting the light returning from the object model;
- a processing unit generating object model data from different intensity values and/or different wavelengths and/or different polarizations of the detected object model light; and,
- an apparatus for object generation.

Claim 39 (new) The system for generating a three-dimensional object as defined in Claim 38 wherein the scanning optical system has at least one illumination pinhole and one detection pinhole.

Claim 40 (new) The system of Claim 38, wherein the scanning operation is controlled by a control device, and the light beam is deflected by a beam deflection device.

Claim 41 (new) The system of Claim 38, wherein scanning optical system is a confocal scanning microscope.

Claim 42 (new) The system of Claim 38 wherein apparatus for object generation is a laser beam lithography machine.

Claim 43 (new) The system of Claim 42, wherein the laser beam of the laser beam lithography machine exposes a polymer liquid that can be cured with laser light.